Investment Opportunity Fact Sheet: Production of non-traditional animal feed for ruminants – Urea-Molasses Multi-nutrient Blocks (UMMBs)	
Market	
Targeted market	A Urea-Molasses Multi-nutrient Block (UMMB) is a formulated feed supplement designed to provide essential nutrients to livestock, especially ruminants, and is commonly referred to as a multi-nutrient block. It is a solid block produced based on agricultural residue with Crude Protein (CP) content of 12%, 14%, 16%, and 18%. Its lickable format ensures consistent nutrient intake, improving roughage digestion, growth, and overall well-being. UMMB provides energy, non-protein nitrogen, and essential minerals, and can reduce up to 50 % of concentrate feed consumption, as up to 30 percent of the total CP requirement can come from the multi-nutrient blocks.[1] The targeted market is the local Egyptian market, mainly the large-scale farms, aiming to improve animal health and enhance milk production for cows.
Project description	The project aims to produce UMMB by utilizing 15,800 tons per year of agricultural residue and agro-industrial waste, such as tomato cake, olive cake, second-grade dates, sugar beet pulp, molasses, and wheat bran, through mechanical and mixing processes technology. The facility is recommended to be located close to the areas where collected targeted agricultural residue is available in the Delta in El-Behira, Sharqia, Dakahlia, Kafr El Sheikh, and Gharbia. However, they are also available in El-Minya, Assiut, and Beni Suef. Accordingly, the production location is recommended to be in one of the above-mentioned Governorates for ease of accessibility and reduced transportation distances of the raw materials.
Competitive edge	Providing a supplement for ruminants with a high and uniform nutritional value that is less expensive compared to traditional animal feed About 65 – 80 % of the input material is from agricultural residues and agro-industrial waste Minimize the open burning of agricultural waste by utilizing it to produce high-quality products Introduction of a new product in the Egyptian market that helps reduce the need for conventional protein supplements, making them cost-effective for smallholder farmers
Market features	The Market Size was valued at USD 100 billion in 2023 and is expected to reach USD 147.75 billion by 2031, growing at a 5% CAGR from 2024 to 2031[2]
Financial Features	
Total annual amount of the products[3]	UMMB with 12% Protein: 1,457 to 1,822 ton/year UMMB with 14% Protein: 1,457 to 1,822 ton/year UMMB with 16% Protein: 4,097 to 5,122 ton/year UMMB with 18% Protein: 5,153 to 6,442 ton/year

[1] FAO,2007

[2] https://www.marketresearchintellect.com/product/global-mineral-block-market/

[3] The annual production amount for each product was determined based on the availability of raw materials throughout the year to reduce the need for long-term storage and prevent the spoilage of agricultural residues.

Selling price (EGP/ton)	The following are the estimated selling prices: UMMB with 12% Protein: 12,388 UMMB with 14% Protein: 13,268 UMMB with 16% Protein: 13,686 UMMB with 18% Protein: 14,469
Land area required	Building Area: 1885 m2 • Equipment and Industry Area: 283 m2 • Storage Area: 1685 m2 • Administrative Area: 100 m2 Setback Area: 851 m2
Investment	63 million EGP
IRR	49%
Simple payback	4.4 years
Process	
Required Input	Agricultural and agro-industrial residues = 15,800 ton per year The required input includes yellow corn, wheat bran, soybean meal, tomato cake, olive cake, second-grade dates, sugar beet pulp, and molasses. Additives are included in UMMBs to meet nutritional needs, providing essential calcium, salts, minerals, vitamins, and detoxifiers to help prevent bacterial and fungal infections. The additives quantities are as follows: • Urea: (178 ton/year) • Molasses: (2630 ton/year) • Limestone: (266 ton/year) • Mineral and vitamin mixture: (61 ton/year) • Sodium chloride: (114 ton/year) • Anti-toxic compounds: (15.2 ton/year)
Process/Technology	Mechanical and mixing processes
Equipment	Grinders, mixers, hydraulic press machines, and packaging machines.
Human Resources	Technicians, machine operators, engineers, managers, and drivers
Risks and Mitigation Measures	
Risks and Mitigation Measures	• **Risk of seasonal variability of the waste:** the waste streams might be unavailable due to unexpected seasonal variability or limited amounts of waste due to seasonal variability. **Mitigation: t**his could be mitigated by stockpiling materials during high-yield periods. • **Risk of spoilage of stored agricultural or agro-industrial waste:** the stored rice straws and wheat straws during the off-season could encounter spoilage **Mitigation:** this could be mitigated through storing the waste in a ventilated room and keeping humidity controlled to maintain quality.

Impacts	
Environmental Impact	Prevent open burning of agricultural residues and produce high-value-added products. Reduce the methane emissions of lactating cows by 20-27% as a consequence of the improved feed digestibility.[4]
Social Impact	Provides direct and indirect job opportunities. Raising the standard of living for farmers by getting benefit of agricultural waste.
Location	
Location of Supply	The raw materials of the integrated animal feed are available in the Nile Delta Region, mainly in Sharqia, Behira, Dakahlia, Kafr El Sheikh, and Beni Suef (about 29 million tons per year). The production location is recommended to be in one of the mentioned governorates. For ease of accessibility in transportation.

[4] *https://www.fao.org/fileadmin/user_upload/enteric-methane/docs/Ethiopia_draft.pdf*